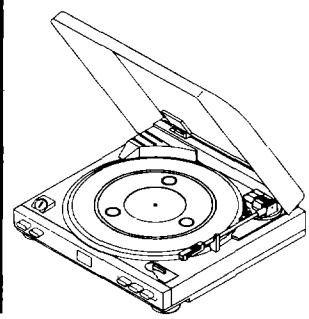
PIONEER
The Art of Entertainment

Service Manual



ORDER NO.
RRV1608

STEREO TURNTABLE

PL-990

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model	Power Requirement	The voltage can be converted by the following method.
	PL-990		
KUCXCN1	O	AC120V	———
WYXCN1	O	AC220 – 240V	———
WVXCN1	O	AC220 – 240V	———
WPWXCN1	O	AC220 – 240V	———
RDXCN1	O	AC110 – 127V/220 – 240V	With the voltage selector

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1. SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING
Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).
When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

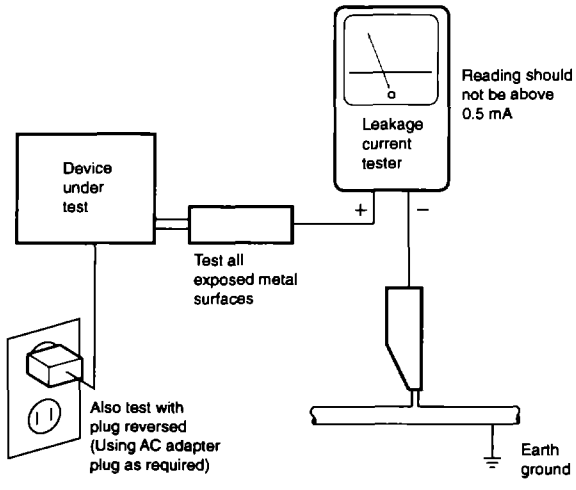
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60 Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5 mA.


Reading should not be above 0.5 mA
Leakage current tester
Device under test
+
−
Test all exposed metal surfaces
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

2. PACKING, EXPLODED VIEWS AND PARTS LIST

NOTES:

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

2.1 PACKING

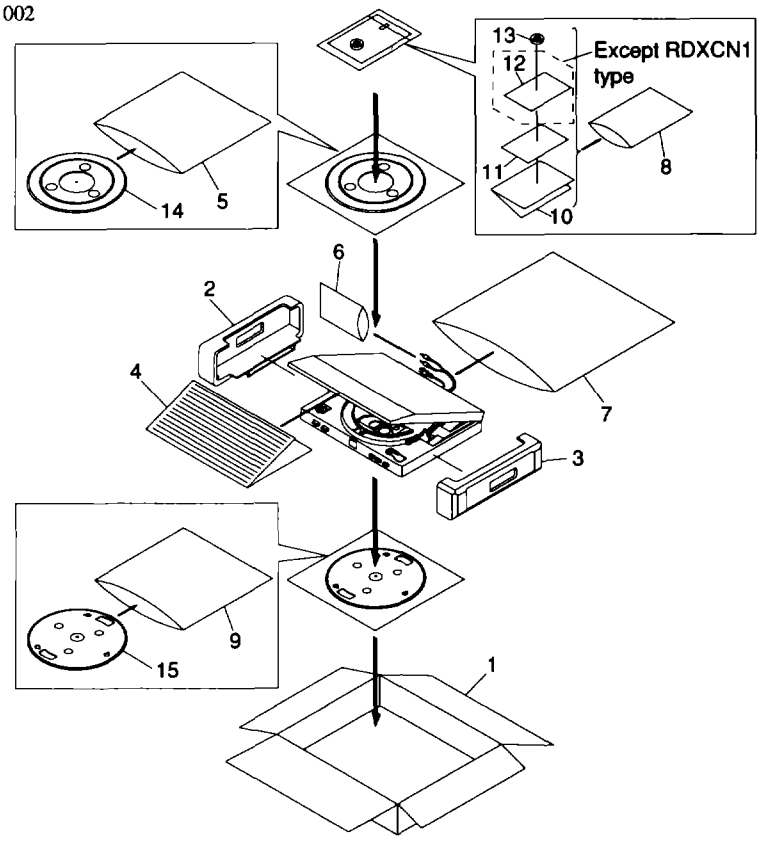
■ CONTRAST OF PL-990/KUCXCN1, WYXCN1, WVXCN1, WPWXCN1 AND RDXCN1

PL-990/KUCXCN1, WYXCN1, WVXCN1, WPWXCN1 and RDXCN1 have the same construction except for the following:

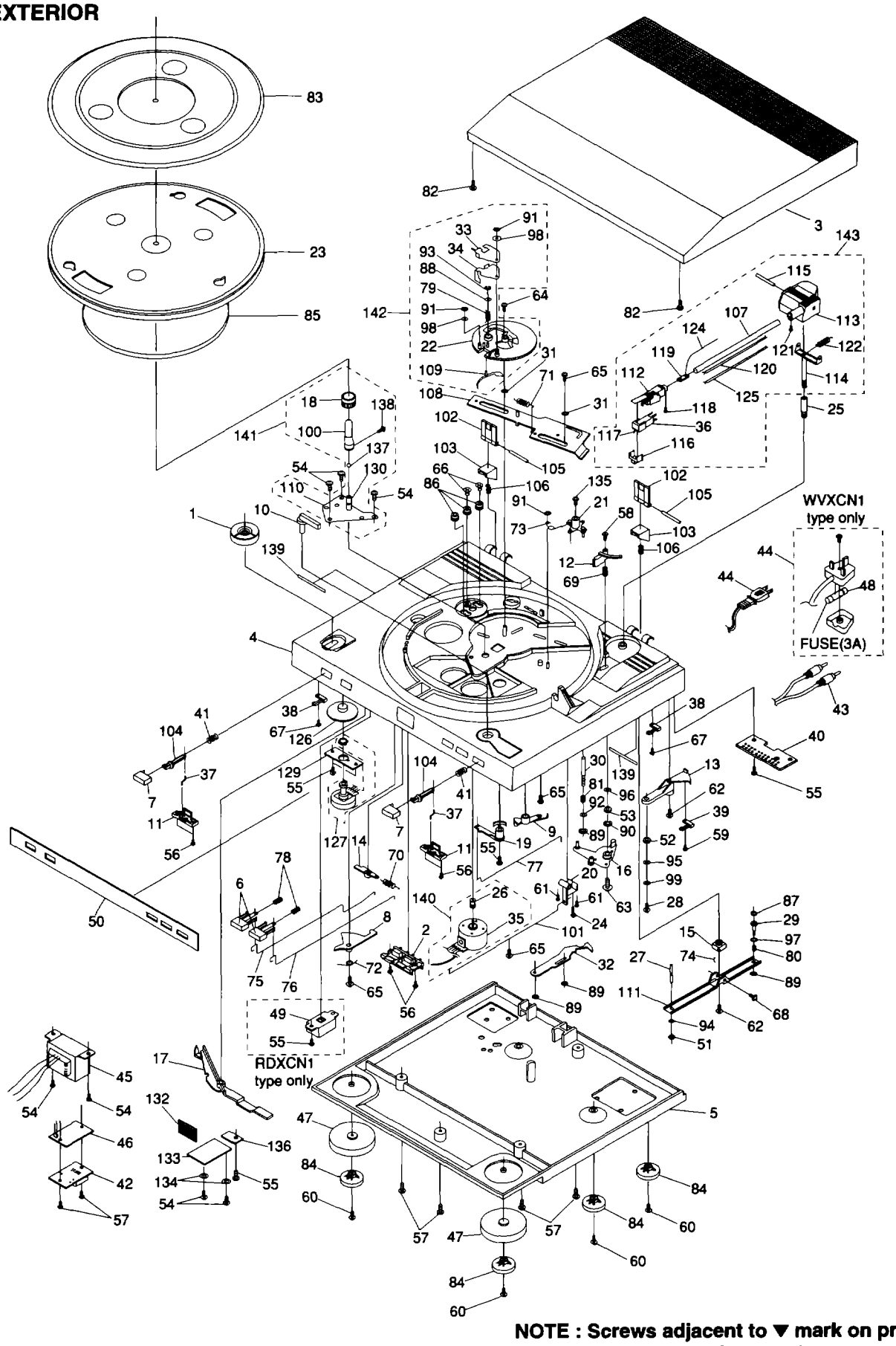
Mark	No.	Symbol & Description	Part No.					Remarks
			KUCXCN1 TYPE	WYXCN1 TYPE	WVXCN1 TYPE	WPWXCN1 TYPE	RDXCN1 TYPE	
	1	PACKING CASE	PZH1010	PZH1007	PZH1006	PZH1009	PZH1008	
	10	OPERATING INSTRUCTIONS (English/French/Spanish/Chinese)	PZR1002	Not used	PZR1002	PZR1002	PZR1002	
	10	OPERATING INSTRUCTIONS (English/French/German/Italian/ Dutch/Swedish/Spanish/Portuguese)	Not used	PZR1001	Not used	Not used	Not used	
NSP	12	WARRANTY CARD	PZR1007	PZR1005	PZR1005	PZR1006	Not used	

■ PARTS LIST FOR PL-990/KUCXCN1

Mark	No.	Description	Parts No.
	1	PACKING CASE	PZH1010
	2	POLYFORM(L)	PZH1011
	3	POLYFORM(R)	PZH1012
	4	POLYSTYRENE BAG	PZH1015
	5	PE BAG	PZH1019
	6	PE BAG	PZH1020
	7	PE BAG	PZH1022
	8	PE BAG	PZH1023
	9	PE BAG	PZH1024
	10	OPERATING INSTRUCTIONS (English/French/Spanish/Chinese)	PZR1002
NSP	11	EQ CAUTION	PZR1004
NSP	12	WARRANTY CARD	PZR1007
	13	EP ADAPTOR	PZE1001
	14	PLATTER MAT	PZN1062
	15	PLATTER	PZN1082



2.2 EXTERIOR



NOTE : Screws adjacent to ▼ mark on product are used for disassembly.

■ CONTRAST OF PL-990/KUCXCN1, WYXCN1, WVXCN1, WPWXCN1 AND RDXCN1

PL-990/KUCXCN1, WYXCN1, WVXCN1, WPWXCN1 and RDXCN1 have the same construction except for the following:

Mark	No.	Symbol & Description	Part No.					Remarks
			KUCXCN1 TYPE	WYXCN1 TYPE	WVXCN1 TYPE	WPWXCN1 TYPE	RDXCN1 TYPE	
⚠	44	AC CORD	PZK1007	PZK1009	PZK1008	PZK1011	PZK1010	
⚠	45	POWER TRANSFORMER (AC120V)	PZT1001	Not used	Not used	Not used	Not used	
⚠	45	POWER TRANSFORMER (AC220 – 240V)	Not used	PZT1002	PZT1002	Not used	Not used	
⚠	45	POWER TRANSFORMER (AC220 – 240V)	Not used	Not used	Not used	PZT1004	Not used	
⚠	45	POWER TRANSFORMER (AC110 – 127/220 – 240V)	Not used	Not used	Not used	Not used	PZT1003	
⚠	48	FUSE (3A)	Not used	Not used	PZE1003	Not used	Not used	
⚠	49	VOLTAGE SELECTOR SW	Not used	Not used	Not used	Not used	PZK1014	

■ PARTS LIST FOR PL-990/KUCXCN1

Mark	No.	Description	Parts No.
	1	EP ADAPTOR	PZE1001
	2	PRESS SET	PZN1026
	3	DUST COVER	PZN1079
	4	PANEL	PZN1080
	5	BOTTOM PLATE	PZN1081
	6	PLAY,STOP KNOB	PZN1030
	7	SPEED,CUEING KNOB	PZN1031
	8	PENDULUM(L)	PZN1032
	9	PENDULUM(M)	PZN1033
	10	SELECT RECORD KNOB	PZN1034
	11	KNOB SET	PZN1035
	12	LIFTER	PZN1036
	13	FIXING SWITCH SET	PZN1037
	14	PENDULUM(S)	PZN1038
	15	LIFTER SET	PZN1039
	16	STARTING LEVER	PZN1040
	17	STARTING SUPPORT	PZN1041
NSP	18	SMALL GEAR	PZN1042
	19	SELECTOR	PZN1043
	20	OIL SHAFT SET	PZN1044
	21	SELECT PLATE	PZN1045
NSP	22	CAM GEAR	PZN1046
	23	PLATTER	PZN1082
	24	SCREW	PZB1052
NSP	25	TONEARM SHAFT SET	PZP1003
NSP	26	PULLEY	PZX1015
	27	SHAFT	PZN1048
	28	SHAFT	PZN1049
	29	SHAFT	PZN1050
	30	SHAFT	PZN1051
	31	COPPER WASHER	PZN1052
	32	CONTROL PLATE	PZN1053
NSP	33	FRICTION LINK	PZN1054
NSP	34	ACTUATING LINK	PZN1055
NSP	35	MOTOR	PZX1010
	36	CARTRIDGE	PZP1001
	37	STEEL CRAMPER	PZN1056
	38	MICRO SWITCH (SW2, SW3)	PZS1001
	39	MICRO SWITCH (SW1)	PZS1002
	40	EQ P.C.BOARD ASSY	PZX1029
	41	SPRING	PZB1006
	42	P.C.BOARD ASSY	PZX1027
	43	SIGNAL WIRE	PZK1006
⚠	44	AC CORD	PZK1007
⚠	45	POWER TRANSFORMER (AC120V)	PZT1001
	46	INSULATOR	PZN1059
	47	FOOT RING	PZN1069
	48	.....	
	49	.....	
	50	DECORATIVE PLATE	PZN1084
	51	NUT	PZB1007
	52	NUT	PZB1008
	53	NUT	PZB1009
	54	SCREW	PZB1010
	55	SCREW	PZB1011
	56	SCREW	PZB1012
	57	SCREW	PZB1013
	58	SCREW	PZB1014
	59	SCREW	PZB1015
	60	SCREW	PZB1016
	61	SCREW	PZB1050
	62	SCREW	PZB1018
	63	SCREW	PZB1019
	64	SCREW	PZB1020
	65	SCREW	PZB1021
	66	SCREW	PZB1022
	67	SCREW	PZB1023
	68	SCREW	PZB1024
	69	SPRING	PZB1025
	70	SPRING	PZB1026
	71	SPRING	PZB1027
	72	SPRING	PZB1028
	73	SPRING	PZB1029
	74	SPRING	PZB1030
	75	SPRING	PZB1053
	76	SPRING	PZB1054
	77	SPRING	PZB1055
	78	SPRING	PZB1034
NSP	79	SPRING	PZB1035
	80	SPRING	PZB1036

Mark	No.	Description	Parts No.
	81	SPRING	PZB1037
	82	RUBBER FOR DUSTCOVER	PZN1061
	83	PLATTER MAT	PZN1062
	84	RUBBER FOOT	PZN1063
	85	BELT	PZN1064
	86	RUBBER FOR MOTOR	PZN1065
	87	RUBBER CAP	PZN1066
NSP	88	WASHER	PZB1038
	89	E – RING WASHER(3mm)	PZB1039
	90	E – RING WASHER(5mm)	PZB1040
NSP	91	CS WASHER(3mm)	PZB1041
	92	WASHER	PZB1042
NSP	93	E – RING WASHER(2mm)	PZB1043
	94	SPRING WASHER	PZB1044
	95	SPRING WASHER	PZB1045
	96	WASHER	PZB1046
	97	WASHER	PZB1047
NSP	98	WASHER	PZB1048
	99	WASHER	PZB1049
NSP	100	PLATTER SHAFT ASSY	PZN1076
	101	SPRING FOR CUEING	PZN1085
	102	HINGES	PZN1086
	103	INSERT SLIDER	PZN1087
	104	KNOB SHAFT	PZN1070
	105	PIN	PZN1088
	106	SPRING	PZB1056
	107	.....	
	108	RETURN LINK ASSY	PZN1072
NSP	109	CAM GEAR CONTROL ASSY	PZN1073
NSP	110	PLATTER SHAFT SET ASSY	PZN1074
	111	CUEING LEVER ASSY	PZN1075
NSP	112	HEADSHELL	.....
NSP	113	TONEARM SET	.....
NSP	114	ROTARY SHAFT ASSY	.....
NSP	115	PIN	.....
	116	STYLUS COVER	PZP1002
	117	STYLUS	PZP1004
NSP	118	SCREW	.....
NSP	119	GROUND SHEET	.....
NSP	120	WIRE	.....
NSP	121	SCREW	.....
NSP	122	SPRING	.....
	123	.....	
NSP	124	SHIELD WIRE (WHITE)	.....
NSP	125	SHIELD WIRE (RED)	.....
	126	PLASTIC KNOB	PZN1089
	127	VARIABLE RESISTOR (VR01, 10k)	PZC1003
	128	.....	
	129	STEEL PLATE	PZN1090
NSP	130	SHAFT	PZN1097
	131	.....	
	132	ACRYLIC PLATE	PZN1092
	133	MIRROW	PZN1093
	134	WASHER(PLASTIC)	PZB1057
	135	SCREW	PZB1058
	136	LED P.C.BOARD ASSY	PZX1028
NSP	137	STEEL BALL	PZN1067
NSP	138	SCREW	PZB1017
	139	WASHER	PZB1060
	140	MOTOR ASSY	PZX1025
	141	T/T SHAFT ASSY	PZX1026
	142	GEAR ASSY	PZX1013
	143	TONEARM ASSY	PZX1014

3. SCHEMATIC AND PCB CONNECTION DIAGRAMS

NOTE FOR SCHEMATIC DIAGRAMS (Type 1A)

1. When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".

2. Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.

3. RESISTORS:
Unit: k:kΩ, M:MΩ, or Ω unless otherwise noted.
Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
Tolerance: (F): ±1%, (G): ±2%, (K): ±10%, (M): ±20% or ±5% unless otherwise noted.

4. CAPACITORS:
Unit: p:pF or μF unless otherwise noted.
Ratings: capacitor (μF)/voltage(V) unless othrewise noted.
Rated voltage: 50V except for electrolytic capacitors.

5. COILS:
Unit: m:mH or μH unless otherwise noted.

6. VOLTAGE AND CURRENT:
V : Signal voltage at rated output.
or ← V:
DC voltage (V) at no input signal unless otherwise noted.
Value in ( ) is DC voltage at rated power.
⇦ mA or ← mA:
DC current at no input signal unless otherwise noted.

7. OTHERS:
- ⊘ or ⊘ : Adjusting point.
- ◄ : Measurement point.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.

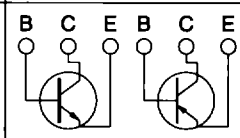
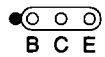
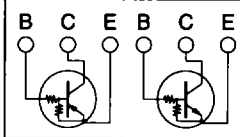
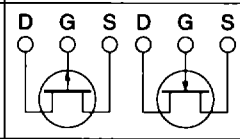
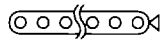
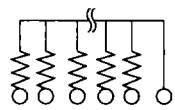
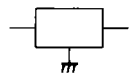
8. SCH-□ ON THE SCHEMATIC DIAGRAM:
- SCH-□ indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)

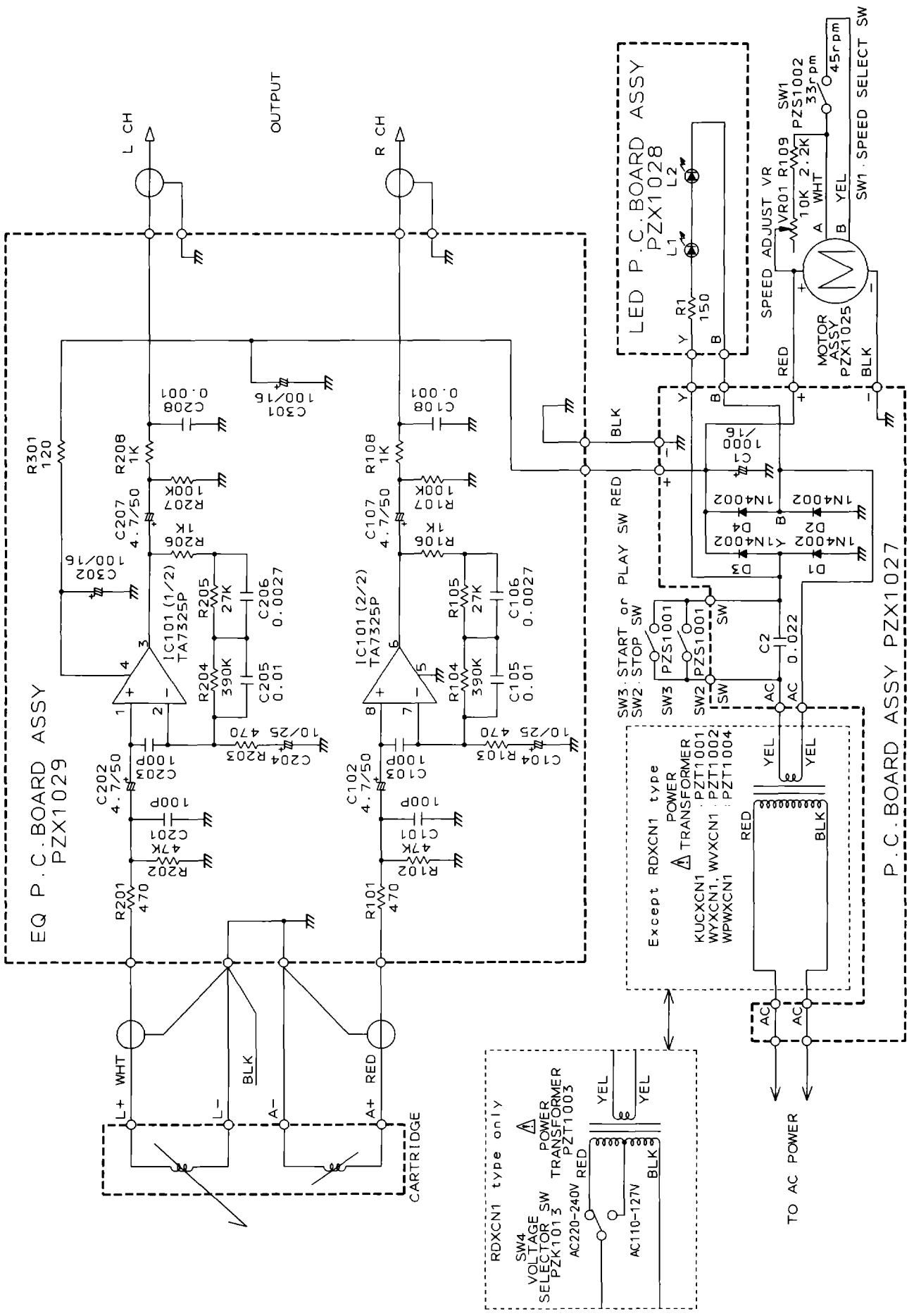
9. SWITCHES (Underline indicates switch position):

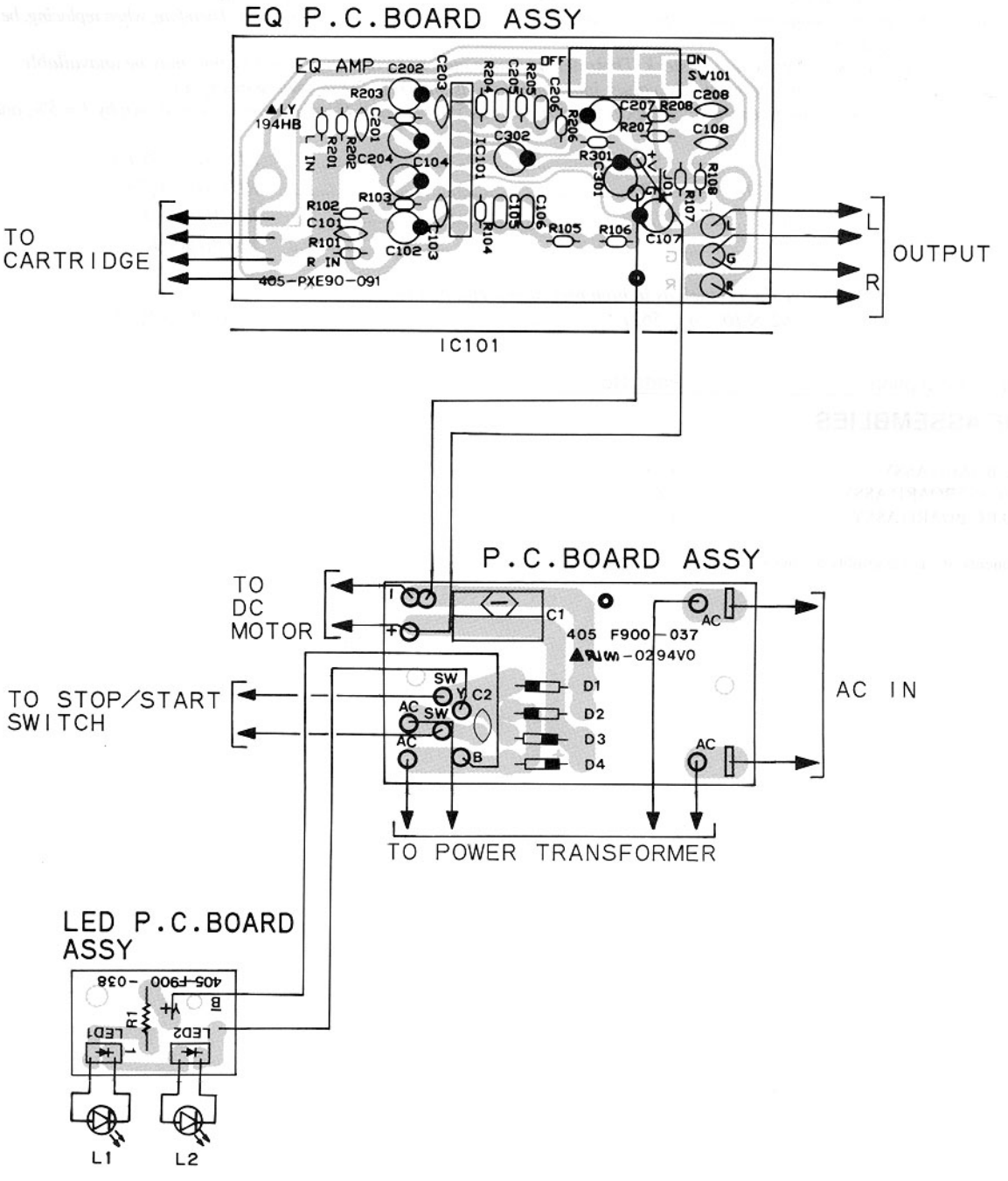
SW1 : SPEED (33rpm/45rpm)
SW2 : STOP
SW3 : START or PLAY
SW4 : LINE VOLTAGE SELECTOR
(AC110 - 127V/220 - 240V)

NOTE FOR PCB DIAGRAMS

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
		Transistor
		Transistor with resistor
		Field effect transistor
		Resistor array
		3-terminal regulator


EQ P.C.BOARD ASSY
PZX1029
P.C.BOARD ASSY PZX1027
LED P.C.BOARD ASSY
PZX1028
L CH
R CH
OUTPUT
IC101 (1/2)
TA7325P
IC101 (2/2)
TA7325P
SPEED ADJUST VR
VR01 R109
10K 2.2K
SW1
PZS1002
33rpm
45rpm
SW1 SPEED SELECT SW
MOTOR ASSY
PZX1025
SW3 START or PLAY SW
SW2 STOP SW
PZS1001
Except RDXCN1 type
POWER TRANSFORMER
KUCXCN1 : PZT1001
WYXCN1, WVXCN1 : PZT1002
WPWXCN1 : PZT1004
RDXCN1 type only
SW4 VOLTAGE SELECTOR SW
PZK1013
POWER TRANSFORMER
PZT1003
AC220-240V
AC110-127V
CARTRIDGE
TO AC POWER
L+ WHT
L- BLK
A- BLK
A+ RED
1N4002
BLK
RED
YEL
WHT



- This diagram is viewed from the mounted parts side.

- The parts mounted on this PCB include all necessary parts for several destinations.
  For further information for respective destinations, be sure to check with the schematic diagram.

4. PCB PARTS LIST

NOTES:

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω	→	*56 × 10^1* →	*561*	*RD1/4PU[5][6][1]J*
47kΩ	→	*47 × 10^3* →	*473*	*RD1/4PU[4][7][3]J*
0.5Ω	→	*0R5*		*RN2H[0][R][5]K*
1Ω	→	*1R0*		*RS1P[1][R][0]K*

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	→	*562 × 10^1* →	*5621*	*RN1/4PC[5][6][2][1]F*

Mark No. Description Parts No.

LIST OF ASSEMBLIES

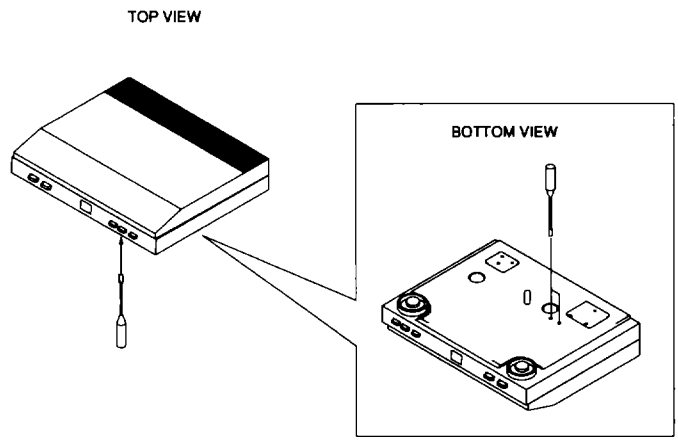
P.C.BOARD ASSY	PZX1027
LED P.C.BOARD ASSY	PZX1028
EQ P.C.BOARD ASSY	PZX1029

The components of each assembly are not selected for maintenance.

5. ADJUSTMENTS

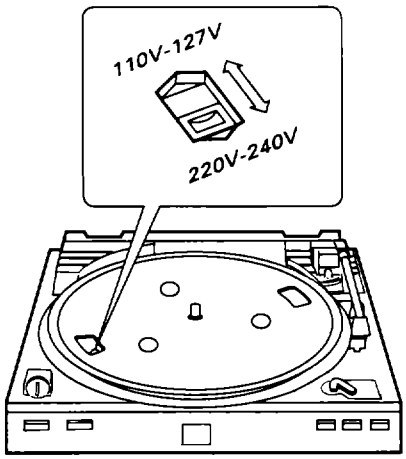
5.1 SPEED ADJUSTMENT

(1) Press the Cueing button to the 33-1/3rpm speed.
(2) Lift the tonearm from its cradle to play the track for 33-1/3rpm of test record.
(3) Insert your screwdriver into the L hole (33-1/3rpm) of the motor, adjust the VR to get the speed value and W&F value from the jitters meter, the speed value must in the range of 2940 - 3090Hz and the W&F value is 0.2%.
(4) Lift the tonearm to play the track for 45rpm of the test record.
(5) Insert your screwdriver into the H hole (45rpm) of the motor, adjust the VR to get the speed value and W&F value, the range of speed value 2900 - 3090Hz and W&F value is 0.2%.
(6) Reset the speed value and W&F value of 33-1/3rpm again.

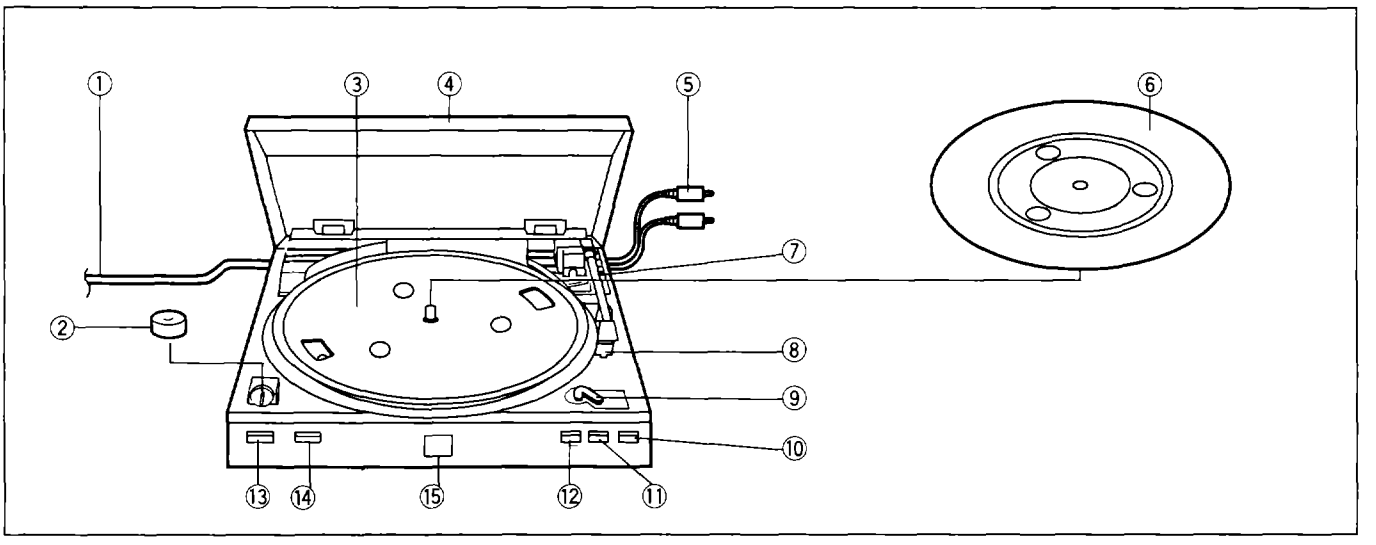


5.2 CHANGE THE LINE VOLTAGE SELECTOR (for RDXCN1 type)

The line voltage selector switch is located on the top of the cabinet of this turntable.



6. PANEL FACILITIES



① AC power cord
② 17cm (7") EP record adaptor
③ Turntable platter
④ Dust cover
⑤ Output cord
⑥ Platter mat
⑦ Tonearm
⑧ Cartridge
⑨ SIZE selector (30/17)
⑩ Arm-elevation button (▂UP/▉DOWN)
⑪ STOP button
⑫ START or PLAY button
⑬ SPEED button (▉33/▂45)
⑭ SPEED ADJUST knob
⑮ Stroboscope window

7. SPECIFICATIONS

Motor type	DC servo motor
Drive system	Belt drive system
Speed of rotation	2 speeds: 33-1/3, 45 rpm
Wow and Flutter	No more than 0.25% WRMS
S/N ratio	More than 50 dB (DIN-B)
Platter	Diameter ø295 mm
Tonearm	Dynamic balance straight pipe arm
Cartridge type	MM type
Replacement stylus	PZP1004
Stylus	0.6 mil diamond
Output voltage (with equalizer amplifier)	112-270 mV
Stylus pressure	3.5 g ± 1 g
Power requirements	
U.K., Australian models	AC 220 – 240 V, 50/60 Hz
U.S., Canadian models	AC 120 V, 50/60 Hz
Other destination models	AC 110 – 127 V/220 – 240 V (switchable) 50/60 Hz
Power consumption	2 W
External dimensions	420(W) x 100(H) x 342(D) mm 16-9/16(W) x 3-15/16(H) x 13-7/16(D) in.
Net weight	2.65 kg (5 lb 13 oz)
Supplied accessories	
EP adaptor	1
Operating instructions	1

NOTE:
Specifications and design subject to possible modification without notice, due to improvements.